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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,332	12/28/2000	Darwin A. Engwer	3239P069	7669

8791 7590 05/06/2004

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EXAMINER	
NGUYEN, ALAN V	
ART UNIT	PAPER NUMBER
2662	10

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/751,332	ENGWER ET AL.	
	Examiner	Art Unit	
	Alan Nguyen	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-36 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-36 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 28 December 2000 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4, 8, 9.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9, 11-20, 22-31, and 33-36 are rejected under 35 U.S.C. 102 (b) as being anticipated by Fischer et al (US 5,889,772) hereafter Fischer.

Regarding **claims 1, 12, and 23** Fischer discloses a method **(col 5 lines 11-14)**, means **(col 5 lines 34-36)**, and machine readable medium **(inherent; the controller of figure 6 must require machine code to execute)** of automatically adjusting a fragmentation threshold for data transmissions between an access point **("WLAN controller 100" figure 6; col 7 lines 33-36)** and one or more associated wireless units **(Wireless LAN stations; col 7 lines 40-46)** via a wireless medium associated with a wireless network system including a wired backbone network, comprising:

determining a transmission error factor indicative of errors occurring in the transmission of one or more data packets between the access point and the one or more associated wireless units **(calculate a ratio of packet_fails count to packet_transmitted (BER) between transmission and destination station; For example see col 12 lines 6-20)**; and

automatically adjusting the fragmentation threshold based on the transmission

error factor **(Based on the BER ratio, the monitor and adjust unit 112 adjusts the fragmentation threshold level; col 12 lines 14-18)**.

Regarding **claims 2, 13, and 24** Fischer discloses where determining the transmission error factor comprises transmitting the on or more data packets; and determining the transmission error factor based on a number of acknowledgement packets received in response to the transmitted one or more data packets **(the monitor counts the number of failures to receive a ACK frame from each destination address after the frame was transmitted, and keeps this number as the BER fails count; col 11 lines 20-41 and 60-67; also see col 12 lines 1-7)**.

Regarding **claims 3, 14, and 25** Fischer discloses where the transmission error factor depends on a number of errors occurring in the transmission of the one or more data packets for a given time period **(the monitor counts the number of failures to receive a ACK frame from each destination address after the frame was transmitted, and keeps this number as the BER; col 11 lines 20-60 and 60-67; also see col 12 lines 1-7)**.

Regarding **claims 4, 15, and 26** Fischer discloses where the transmission error factor depends on clusters of transmission errors greater than sporadic transmission errors in the transmission of the one or more data packets **(the fragmentation threshold is adjusted based on the bit error rate factor of the current data transmission**

between 2 stations. A burst of concentrated transmission errors would thereby increase the bit error rate more so than sporadic transmission errors; col 12 lines 7-20)

Regarding **claims 5-7, 16-18, and 27-29** Fischer discloses where automatically adjusting the fragmentation threshold comprises

comparing the transmission error factor to an upper threshold; and decreasing the fragmentation threshold if the transmission error factor is above the upper threshold **(Fischer's embodiment allows the fragmentation threshold to be dynamically adjusted to maximize the WLAN throughput for the current operating conditions. The fragmentation threshold is adjusted according to the bit error rate ratios between a transmitting station and a receiving station. If the BER reaches a certain higher value, the monitor and adjust unit 112 will lower the fragmentation threshold until the packets have a lower rate of error; for example see col 12 lines 7-20 and 42-55)**. ;

comparing the transmission error factor to a lower threshold; and increasing the fragmentation threshold if the transmission error factor is below the lower threshold **If the BER reaches a certain lower value, it is inherent the monitor and adjust unit 112 will raise the fragmentation threshold until the packets have an acceptable rate of error to maximize throughput; col 3 lines 65-67 and col 4 lines 34-38)**.

Regarding **claims 8, 9, 19, 20, 30, and 31** Fischer discloses where automatically

adjusting the fragmentation threshold comprises changing the fragmentation threshold by a fixed quantity and by a divisional factor each time the fragmentation threshold is adjusted, where the fragmentation threshold depends on a pre-determined fragmentation threshold divided by the divisional factor **(adjusting the fragmentation threshold level for providing fragmentation of data frames to be transmitted to the first destination station according to the ratio of the incremented count of the failures to the incremented count of the attempts; col 12 lines 6-15)**.

Regarding **claims 11, 22, and 33** Fischer discloses where the pre-determined fragmentation is related to a maximum packet size for transmission over the wireless medium **(the WLAN sets a pre-determined fragmentation threshold level equal to minimum length of a data frame subject to fragmentation, meaning a maximum length that will not be subject to fragmentation; col 4 lines 13-20)**.

Regarding **claims 34-36** Fischer discloses a method **(col 5 lines 11-14)**, means **(col 5 lines 34-36)**, and machine readable medium **(inherent; the controller of figure 6 must require machine code to execute)** of automatically adjusting a fragmentation threshold for data transmissions between an access point **("WLAN controller 100" figure 6; col 7 lines 33-36)** and one or more associated wireless units **(Wireless LAN stations; col 7 lines 40-46)** via a wireless medium associated with a wireless network system including a wired backbone network, comprising:

determining a transmission error factor indicative of errors occurring in the

transmission of one or more data packets between said access point and said one or more associated wireless units **(calculate a ratio of packet_fails count to packet_transmitted (BER) between transmission and destination station; For example see col 12 lines 6-20)**; and

automatically adjusting said fragmentation threshold based on said transmission error factor **(Based on the BER ratio, the monitor and adjust unit 112 adjusts the fragmentation threshold level; col 12 lines 14-18)**, where the one or more data packets each have a finite time duration **(the BER is based on the time intervals of packets transmitted and acknowledgement messages received. The importance on timely reception of these packets signifies a time duration for each packet; col 11 lines 20-31)**;

changing the data rate of the transmission of the one or more packets; automatically adjusting the fragmentation threshold in response to the data rate change so that the finite time duration for the one or more packets remains substantially the same **(The fragmentation threshold to be dynamically adjusted to maximize the WLAN throughput for the current operating conditions. The fragmentation threshold is adjusted according to the bit error rate ratios between a transmitting station and a receiving station. Due to the interference of the surrounding environment the data rate will constantly change and the fragmentation threshold will adjust to result in accurate data packets with similar transmission times; for example see col 12 lines 7-20 and col 4 lines 34-37).**

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10, 21, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fischer in view of Bird et al (US 6,657,954) hereafter Bird.

Regarding **claims 10, 21, and 32** Fischer discloses where the pre-determined fragmentation is related to a maximum packet size for transmission over a wireless network **("wireless local area network"; col 5 lines 1-15)**.

Fischer, however, does not explicitly disclose that the wireless network is coupled to a wired backbone network.

Bird discloses a wireless network that uses data flow thresholds to control the transmission of data in the network. The wireless network is coupled to a wired backbone network **(figure 2; the wireless connection is connected to workstations connected through a wired network; for example see col 5 lines 50-65)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Fischer's wireless system that utilizes fragmentation thresholds to transmit data through a wired network, as taught by Bird. The motivation is a broader and more accessible system that can communicate globally with many other networks, as explained by Bird in column 5.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is cited to show the state of the art with respect to the use of packet thresholds and flow control in wireless networks:

US Patent (6,714,514) to Espax et al

US Patent (5,440,545) to Buchholz et al

US Patent (6,456,860) to Nakagaki

US Patent (6,697,378) to Patel

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369. The examiner can normally be reached on 9am-6pm ET

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AVN
April 30, 2004

RICKY NGO
PRIMARY EXAMINER